CLAIMS

1. (Previously Presented) A Residential Communications Gateway (RCG) device that is capable of providing broadband communications services over a plurality of standard Plain-Old-Telephone Service (POTS) lines, said RCG device comprising:

at least one POTS connection capable of connecting to a Public Switched Telephone Network (PSTN);

a wireless interface capable of connecting to at least one of wireless devices, wireless Local Area Networks (LANS) and other RCGs;

one of a USB, firewire, Ethernet and other physical layer connections capable of physically connecting to other equipment;

at least one POTS circuit capable of connecting to a standard telephone device;

a processor capable of creating an ad-hoc wireless network via direct wireless connections between devices, hopping said wireless connections among other RCGs to create a network of wirelessly connected RCGs to increase bandwidth for a requesting RCG device wherein an aggregated POTS bandwidth is faster than the speed of a single POTS line device, utilizing Voice over IP (VoIP), voice/data compression and IP packet routing and switched circuit techniques to communicate multiple derived telephone POTS circuits over a single POTS telephone line connected to a Local Exchange Company (LEC) and over a wireless network, assigning individual and unique telephone numbers, as those used by the PSTN, to the derived virtual POTS circuits that are carried over a single POTS circuit from the LEC.

2. (Previously Presented) The RCG of claim 1, wherein the processor is capable of:

dynamically allocating the POTS and wireless bandwidth between multiple local voice circuits and local data demands as well as requests for that bandwidth made by remote RCG devices,

dynamically allocating its physically connected POTS bandwidth to other RCGs not physically connected to said POTS line(s),

requesting said bandwidth, and

prioritizing local as well as remote bandwidth requirements on both POTS circuits as well as wireless connections.

3. (Previously Presented) The RCG of claim 1, wherein the processor is capable of:

allocating separate and physically diverse POTS lines or wireless connections into a multilink group,

aggregating the combined bandwidth of a plurality of said separate physically diverse POTS lines or wireless connections,

providing said aggregate bandwidth to the benefit of one of a single and a plurality of RCG devices for the concurrent and high speed transmission of one of large and multiple files,

and utilizing at least one of the separate and physically diverse POTS lines or wireless connections that are physically connected to other remote RCG devices as stand alone connections that are not grouped in a multilink configuration to the benefit of a single or a plurality of RCG devices for the concurrent high speed transmission of large or multiple files.

4. (Previously Presented) The RCG of claim 1, wherein the processor is capable of creating and maintaining POTS and wireless routing tables that constantly change and that are used to determine maximum routing efficiencies for Quality Of Service (QOS) and maximum bandwidth between local and remote POTS circuits and broadband wireless connections.

5. (Previously Presented) The RCG of claim 1, wherein the processor is capable of providing dynamic bandwidth reallocation for a plurality of separate and physically diverse POTS lines and wireless connections.

6. (Previously Presented) The RCG of claim 1, wherein the processor is capable of providing security by one of Wired Equivalent Privacy (WEP), Internet Protocol Security (IPSEC), combination of proprietary and public security protocols, and providing security by employing standard security practices.

7. (Previously Presented) The RCG of claim 1, further comprising an automatically initiated account activation service whereby installing the RCG device will initiate an equipment configuration, network configuration, equipment registration, account activation and billing services.

8. (Previously Presented) The RCG of claim 1, wherein the processor is capable of creating a wireless router table by polling other devices within its transmission range for their wireless routing tables.

9. (Previously Presented) The RCG of claim 1, wherein the processor is capable of providing a failsafe lifeline support for power failure.

10. (Previously Presented) A method for aggregating, sharing and dynamically routing and allocating bandwidth from a plurality of wired and wireless networks that are geographically disbursed over a wide area, and providing some or all of the aggregated bandwidth to any user on an on-demand basis, the method comprising the steps of:

developing and updating a network table that comprises a list of nearby RCGs, their bandwidth capabilities over local, remote and wireless connections, and their location with respect to a requesting RCG;

determining an optimum amount of bandwidth needed for an immediate data transfer needs of the requesting RCG;

determining which of the nearby RCGs should be contacted for access to unused bandwidth to support a transfer of the requesting RCG, based upon their unused local bandwidth capacity, and a distance and a number of hops between the RCGs and the requesting RCG;

sending a request to the supporting RCGs asking for use of a portion of the unused bandwidth;

receiving responses from the supporting RCGs with information about how much bandwidth each selected RCG can share;

selecting which of the supporting RCGs to use for optimal use of needed bandwidth;

contacting the selected RCGs with control information for sending data to the requesting RCG;

sending packets of the data from the selected RCGs to the requesting RCG;

reassembling the packets of the data at the requesting RCG; and

relinquishing the bandwidth of each of the selected RCGs.

11. (Previously Presented) The method of claim 10, further comprising the step of sending a request to a single supporting RCG that has sufficient unused bandwidth for satisfying the request of the requesting RCG.

12. (Previously Presented) The method of claim 10, wherein each of the supporting RCGs can opt out of bandwidth sharing based upon local demand priority, and wherein local demand for bandwidth supersedes a request of a remote RCG for bandwidth sharing.

13. (Previously Presented) The method of claim 10, further comprising the steps of:

dynamically reallocating shared bandwidth of the supporting RCGs during multi-link data transfers as supporting RCGs opt out of bandwidth sharing due to local bandwidth demands; and

enlisting additional supporting RCGs to provide additional bandwidth.